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ABSTRACT

Knowledge and skill are needed for safe and enjoyable travel and camping in the wilderness in winter. The beauty of snow and ice, reduced human use, and higher tolerance of animals toward humans make the wilderness attractive during winter. The uniqueness of winter travel presents several challenges that are not present in other seasons. Safety is of primary interest, because of increased consequences for mistakes or bad luck. Good skills, careful planning, proper equipment, good judgement, clear thinking, and constant awareness and care are of utmost importance to insure enjoyment and safety. Information concerning avalanche, day length, and moisture should be considered. Winter cold can present challenges in several areas: the human body, clothing, body functions, sleeping, cooking, eating, liquids, photography, and batteries. Protection from the sun involves using sunscreen and wearing a protective hat and glasses. Weather forecasts should be heeded before embarking on a trip. Travelers should be knowledgeable about possible glaciers or steep slopes. Possible methods of winter wilderness travel include snowshoeing, skiing, and climbing. Consideration must be given to how goods will be transported on the trip. This paper includes an extensive sample packing list and 20 references. (KS)

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WINTER WILDERNESS TRAVEL AND CAMPING

by

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ABSTRACT:

Winter transforms earth's landscape into a wonderland of incredible beauty, a unique and special place, exquisite, incredibly powerful, yet incredibly fragile. Viewed differently, winter in wilderness areas can be hostile, forbidding, and unpleasant. The purpose of this article is to focus on the knowledge and skill needed for safe and enjoyable travel and camping in wilderness in winter. The breadth of the topic prohibits an indepth study of any particular aspect of winter wilderness travel and camping; therefore, this article will consist of an overview which will be of particular interest to the novice and, perhaps, intermediate level winter traveler and camper. This study will be limited to travel under one's own power in wilderness areas cold enough to produce snow in winter.

Introduction

Why Travel and Camp in Winter?

Those who have not experienced wilderness in winter often ask, "Why would anyone want to travel and camp in wilderness in winter?" Usually, one visit to wilderness in winter answers the questions, converts the skeptic into an enthusiast, and exerts a magnetism that attracts the venturer back time and time again.

The wilderness landscape is one of beauty in winter. Nature paints subtle shapes with snow and more powerful, angular, jagged ones with ice, each serving as a pallet for the special colors of winter's days and nights. The scars of man's overuse from interest and love, and from man's destruction from ignorance or indifference are covered by snow, and all is made new

and pristine. Hidden are the litter of humans and the trails cut by vehicles, pack animals, and human feet. The earth gets a visual overhaul and a fresh start. Each new snow erases the evidence of former use and presents the traveler with a glorious new start in a world no one else has seen or experienced.

Reduced human use is an attraction of wilderness in winter. Except for rare cases, wilderness, even in areas of heavy summer use, is relatively uninhabited in winter. A degree of solitude and personal interaction with nature that frequently escapes the summer traveler is available to those willing to venture into wilderness in winter.

Large animals, such as deer, elk, big horn sheep, bison, elk, coyotes, prong horn antelope, trumpeter swans, are much more tolerant of human presence in winter. The animals, which come down to the valleys form the high country, are so intent on surviving the rigors of winter that they often ignore humans. Two notes of caution: 1) never get close enough to wild animals to endanger their health and chance of surviving, particularly in winter when life often hangs by a thread, and 2) always remember that wild animals are wild, unpredictable, and capable of doing you extreme harm. No picture is worth putting their life or yours in peril. To treat wild animals improperly is cruel and behavior unacceptable for a wilderness traveler. A human literally can hold in his hand the key to survival for a wild animal.

Some of the summer concerns and pests, such as bears, snakes, and insects, are absent or inactive in winter. Winter also presents opportunity for special wilderness activities and events, such as ice fishing, skating, cross country skiing, climbing, and other organized and individual sports.

Most winter wilderness activities are relatively inexpensive, when compared with many other recreational sports, such as fishing, golf, downhill skiing, etc. Good equipment does represent a financial investment, but is quite durable when properly maintained. Also on the plus side, there are no lift tickets, lodging costs, and no lift lanes.

One of the most enjoyable reasons for traveling and camping in winter is the numerous and varied challenges one encounters. In comparison with other seasons, winter travel, in exchange for the advantages and marvels enumerated above, demands more skills, additional conditioning, and extracts a greater toll for mistakes. Wilderness in winter awaits to serve as a standard against which one can measure, and by which one can validate, his skills.

Uniqueness and Challenges of Winter for the Wilderness Traveler

Safety

The uniqueness of winter travel presents several challenges that are not present in other seasons. Safety is of primary interest, because of the increased consequences for mistakes or bad luck. One has a smaller margin of error before unpleasant and possibly disastrous results occur. Mistakes that would merely cause inconveniences in the summer can have grave consequences in winter. Wilderness in winter is a very hostile environment; nature does not care; one enters on nature's terms and lives by nature's rules.

Because there is reduced chance for help/rescue, a person or party must be self-sufficient. In winter, a wilderness traveler is much more isolated, and in cases of injury or bad weather, mobility of the victim and that of rescuers is greatly reduced as is the ability to signal. Good skills, careful planning, proper equipment, good judgement, clear thinking, and constant awareness and care are of utmost importance to insure enjoyment and safety.

Avalanche

Few things in nature are as gentle as a single snowflake. Wind blows it off course; the sun or a touch melts it. But snowflakes do not fall alone; they fall in billions. When combined, snowflakes form a tremendous force. The power of an avalanche is awesome, capable of traveling at speeds up to 200 miles per hour, weighing up to 2,000,000,000 pounds, and striking at forces up to 200,000 pounds per square meter. Avalanche is of constant interest to the wilderness traveler, who must learn: avalanche formation and causes, avoidance of avalanche areas, how to cross avalanche areas when of absolute necessity, what to do if caught in an avalanche, avalanche rescue, and avalanche equipment.

Day Length

The shorter days and longer nights of winter offer special challenges to winter travelers. The daylight hours available for travel and taking down and setting up camp are quite short, and distances covered will vary considerable from travel in other seasons. The long winter nights are welcomed at the beginning of a trip, but can become a challenge to fill as one catches up on

his R & R. A favorite companion can be a terrific asset in this regard. It is suggested that daylight time be set aside to select and set up camp. Such tasks are difficult to accomplish in the darkness and increased cold after sunset.

Moisture

In contrast to other seasons, moisture in winter does not leave. In winter, rather than evaporating, moisture freezes, accumulates, and just stays and stays. It seems to get into and on everything. In many cases, it can be eliminated by shaking or brushing.

The problem comes when moisture freezes in insulation, such as sleeping bags, and accumulates. For example, on a recent American expedition to the North Pole, the sleeping bags accumulated moisture to the point that each bag weighed approximately 50 pounds. The opportunity of each expedition member to reach the pole was in jeopardy until it was decided to dispose of one-third of the bags and sleep three people per two bags zipped together.

Sources of moisture are both internal (perspiration, incessant perspiration, and sometimes breathing) and external. Although every effort must be made to avoid perspiring (by taking off clothing, particularly items covering the head, ventilating, etc.), internal moisture, in the form of incessant perspiration, is going to be produced by the body, and a plan for dealing with it must be devised. The two methods of dealing with internal moisture are "vapor pass" (a term coined by the author) and vapor barrier.

In a vapor pass system all moisture must pass from the body through all insulating layers and the shell layer to the outside. Two common problems encountered when using the vapor pass approach are: 1) the moisture passing outward can render insulation materials ineffective, and 2) when the outer layer of the garment is cold enough to cause the moisture to freeze, an impenetrable barrier is formed, trapping inside the accumulating moisture. A vapor pass system works best in milder winter wilderness temperatures. A person using a vapor pass approach would dress with a thin, medium or expedition thickness wicking layer next to the body; as many layers of insulating fabrics as appropriate, and a shell (60-40 cloth, Gore-Tex, etc.) that will permit internal moisture to pass through to the outside, while keeping out external moisture.

A vapor barrier consists of a thin wicking layer next to the body, followed by a vapor barrier layer comprised of coated nylon or other material which will not permit vapor to pass. The next layers are comprised

of insulating garments as appropriate, and the outside layer is a shell which will not let external moisture get into the insulation. The shell does not have to deal with permitting internal moisture to exit, because there is no internal moisture trying to escape. It is trapped beneath the first vapor barrier layer. A wearer of a vapor barrier system will experience some feeling of moisture, but the body does not continue to produce as much moisture when a particular level of moisture is reached. A vapor barrier system works better when sleeping than when doing strenuous exercise. Advantages of a vapor barrier system include better retention of moisture (which is needed in cold and at altitudes and which means that a person does not have to consume s much water in those situations); dry insulation, permitting use of additional types of insulation in moist conditions; and the ability to use less expensive outer shells, because permitting internal moisture to pass is not a factor. A vapor barrier system works best in temperatures below approximately 10 degrees Fahrenheit.

Care should be taken not to breathe into a garment or sleeping bag. This is tempting, because a person feels warmer, and the air he is breathing is being warmed by the garment or sleeping bag. Instead, warm the incoming air and the head with a face mask or device such as a stocking held to the face by elastic. When time and weather permit, try to dry in the sun items that have collected moisture.

Cold

Winter cold can present challenges in several areas--the human body, clothing, body functions, sleeping, cooking/eating/liquids, photography, and batteries.

Effects of Cold on the Human Body

Human body temperatures must stay very constant. The problems of being too cold range on a continuum from discomfort to death, which results when human body temperatures get very far from 98.6 degrees Fahrenheit.

Hypothermia, a lowering of the core temperature of the body resulting in diminished body functions, is a dangerous problem. Symptoms include: phase 1 -- marked shivering. fast pulse, rapid respiration, paleness, slowing of pace, poor coordination, stumbling, lurching gait, thickness of speech, and poor judgement; phase 2-- slow pulse and respiration, decreased shivering, cool

or cold body; and phase 3 -- confusion and poor thinking, loss of consciousness, and death. One of the most sinister things about hypothermia is that it affects the mind and thought processes of the victim, rendering the mind less effective when the victim needs it the most. Often, a victim must depend on observations of others to diagnose hypothermia. The best way to deal with hypothermia is prevention. Know that it will occur when the body gets cold. Carry an adequate supply of clothing and emergency equipment to deal with the worst scenario into which the current situation could evolve. To treat hypothermia, get the victim warm as soon as possible. Give internal heat by means of warm liquids; put on war, dry clothing; put into a sleeping bag, share body heat, etc.

Frostbite occurs when cells of the body freeze, usually in the extremities. Prevention is important and usually possible. Because the body part becomes numb and because a person does not see himself, one is often dependent on others to see the white appearance of frozen skin. Frostbite is caused by extreme cold, exposed skin, improper protection of body parts, and lack of circulation, which can be caused by vasoconstriction and clothing that is too tight. Treatment for frostbite includes warming as soon as possible with clothing, warm water, or whatever heat is available, with care being taken not to burn the numb frozen part. Do not thaw if the part will freeze again later. Put clean cloth between frozen parts, and keep them elevated if possible. Do not rub with snow, and do not try to walk out on frozen feet unless absolutely necessary.

Be very careful not to fall into water in winter, for the consequences can be quite dire unless others can help rescue and warm the victim in a short time. Care must be taken to recognize streams that may be hidden under the snow and not to cross streams or bodies of water unless it is safe to do so.

Clothing

Proper clothing is very important in staying warm. Wind, and moisture are the enemies of the insulating qualities of the fabrics. Cotton is a very poor insulator because it retains moisture. In winter wilderness situations, "cotton kills." The most frequently used natural insulators used are wool and down.

Wool, proven over centuries to be a good insulator, has the advantage of keeping one warm, even when wet. The disadvantages of wool are that it does not compress very well, is relatively heavy for its ability to

insulate, and makes some people itch if it touches the skin.

Down, the very fine feathers found next to the skin of waterfowl such as ducks and geese, is the lightest substance known to man for its insulating qualities, being twice as warm per unit of weight as the next warmest insulator. Down is also extremely compressible. The disadvantage of down is that it loses its loft, and therefore, its ability to insulate, when it gets wet. Down is expensive when the initial purchase price is considered (approximately two or more times as expensive as synthetic insulators), but is less expensive over the life of the item than synthetic insulators, lasting up to five times as long as synthetics when give proper care.

Synthetic insulating materials frequently are used in winter travel. Each has its endearing and frustrating qualities. Almost all have an important feature--they keep one warm, even when wet. Synthetic insulators, despite advertising claims to the contrary, have two universal negative traits -- they are heavy per unit of insulation, and they do not compress very well. Commonly used synthetic insulators include Polyguard (one continuous filament held together to form a batting, making it easy to sew and work with); Quallofil (four holes, simulating the single holes in the fur of some northern animals, such as caribou and polar bears, through the length of each piece, permitting it to trap more spaces of non-moving air; looks and feels much like down; must be sewn with baffles, because it moves about); Thinsulate, Sontique, etc. (thinner, more dense nylon; made like a carpet, with one "fuzzy" side, which may be worn in or out; very good insulator); and bunting (also called fleece and other brand names; has good appearance; does not "pill" as badly as fiberpile, and is a good insulator). If your favorite insulator has not been mentioned, please forgive, realizing that technology and market trends move quite quickly.

In winter wilderness travel, the head is of considerable importance in heat regulation. One or more balaclavas (thin, medium, or thick) are good insulation. A shell, often in the form of a hood attached to the shell garment, is needed to protect from the wind and moisture. Also, a hat to protect from the sun is important.

To protect the feet, two pair of socks are usually worn. A thin, wicking, preferably slick inner pair, usually of olefin, polypropylene, silk, or wool is worn under a thick outer sock, which is usually made of wool or a synthetic material. Outer socks may be long enough to extend to the knee or beyond, depending on personal preference.

The type of shoes/boots depends on the activity--skiing, climbing, or snowshoeing. Cross country ski boots choices include light weight for track and short ski trips, medium weight boots for day or overnight ski trips, and warmer single or double boots for extended trips. Taller, stiffer boots are used for telemark skiing, and plastic boots are frequently used in the most severe and extreme winter backcountry skiing conditions. Plastic double boots dominate the winter climbing boot market. For snowshoeing, one can wear almost any warm and durable winter boot that is comfortable. Air Force boots, called "bunny" or "Mickey Mouse" boots are warmest.

Hands should be protected with a wicking layer (thin inner glove made of a good wicking material), insulating layer (made of a good insulating material) and a shell layer, preferably with a non-slip material on the palm. Mittens are warmer than gloves.

Body Functions

Common body functions and how you respond to them are altered by cold. Cold drives fluids into the trunk of the body, making the urge to urinate more frequent. An interesting decision is to lay awake at two a.m. trying to decide which is most uncomfortable -- laying in the sleeping bag for the rest of the night with a full bladder or getting out of the sleeping bag to empty the bladder. A container with a good lid is very useful on long nights or periods of bad weather to keep in the tent as a urine receptacle. Anything done with the pants down should be planned carefully and accomplished, not hurriedly,, but in a short period of time, and with due consideration to windage. Used toilet paper should be carried out. In selecting the location of the rest room give consideration to the water supply and spring and early summer esthetics. In places where body wastes remain for very long periods of time, such as a big mountain like Denali, special disposal techniques must be followed.

Sleeping/Shelter

Shelter is necessary in most situations in winter. Natural shelters appeal because some, like snow caves, can seem cozy, are warm, and give a feeling a accomplishment to the builder. But snow caves can be damp, and usually take considerable time to build. Temporary or short term shelters that are easier than snow caves to make include placing a roof of snow, branches, and/or other materials on top of an area hollowed out near the base of a tree or on top of a

trench dug in the snow. Winter wilderness travelers should know how to build emergency shelters from natural materials and should practice building and sleeping in emergency shelters in nonemergency situations.

A sturdy, durable four season tent is a necessity for winter travel and camping. Features normally found in winter tents include better materials and construction, vestibule, tunnel entrances, cook hole, etc. Set up camp in a sheltered area which does not have trees overhead. If traveling on a glacier, check to be sure a crevasse is not under the tent site, and mark with wants the area that is safe for travel without roping. Tents need to be firmly attached to the snow by snow flukes, pickets, skis, trees, logs, or objects purposely buried in the snow.

Sleeping bags must be sufficient to the occasion. Desirable features for winter bags include sufficient loft; insulation adequate for the circumstance; cover to deal with external moisture; good draft tube at the zipper; draft collar; differential cut; and adequate length for putting stove, boots, water, and other items inside at night so they will function in the morning. Two sleeping bags zipped together or a single bag zipped to a bottom insulated from the snow by sleeping pads can provide a warm cozy, sleeping experience for persons sharing one bed.

It is important to insulate the body form the snow beneath. A combination inflatable mattress filled with foam is quite popular, and a one-half inch closed cell pad works well. Cautious types may want to carry one of each. When using inflatable mattresses in severe conditions, be sure to carry a patch kit.

Cooking/Eating/Liquids

Cooking and eating can be a challenge in wilderness in winter. It is important to consume sufficient fluids, and considerable time often is spent obtaining water. When running water is not present, the only fluid available is form melted snow, usually procured by melting clean snow by means of a stove. Fuel might be saved at non-travel time by using the sun's heat to melt snow you have spread on a dark piece of plastic.

In winter wilderness travel, the stove(s) must work, so select a stove capable of dealing with extremes of altitude, wind, and cold. Learn to use the stove with skill, and practice repairing it before winter wilderness use. In extreme conditions, carry two stoves, spare parts, tools, and instructions. Determine and carry the fuel needed to melt snow into water for the group for the entire trip, making sure the fuel does

not spill on other items. In temperatures below zero, place the stove and a fuel container in the sleeping bag at night to insure good starting in the morning. Do not plan to use a wood fire, which is very difficult to build and maintain in winter.

Prepare a firm area for the kitchen in much the same way as the sleeping area is created -- stamp out a place in the snow with the skis, then the feet. The snow under the stove must be firm, and a piece of insulation under the stove is desirable. Otherwise, the hot stove tends to lean and become unstable, spilling is precious product. The kitchen can be elaborate or basic, depending on your taste and the time available for preparation. A shovel is handy for preparing shelves, keeping a supply of clean snow to melt, etc. Start the melting process with a little water in the bottom of the pan. If possible, avoid cooking int he tent because of the dangers of suffocation and fire. Some people purify melted snow by using chemicals or bringing the water to a boil; others do not purify melted snow because they feel the snow is pure.

Food selection is based on personal taste and the body's dietary needs in cold weather. Some meals will be warm (more palatable, psychologically pleasing, and good to warm the body) or cold (because of the time it takes to set up the kitchen and cook). A warm thermos of soup or hot drink is particularly good during the day. Alcoholic beverages in winter actually make one colder because they facilitate loss of body heat, and are to be avoided for that reason and because they adversely affect mental processes at a time when one cannot afford to make mistakes.

Dish washing in the cold is no fun. The effects of cold on greasy containers is obvious. Rather than wash dirty dishes, it is usually adequate and prudent to let the contents of the container solidify, then scrape them out.

Photography

The incredible beauty of the winter landscape and is inhabitants entice one to record their wonder and appeal. Yet, winter photography is one of the most difficult and challenging situations for a photographer. Photographic challenges are numerous.

Batteries often will not work in the cold, and most current cameras are dependent on batteries to function properly. Some good solutions include using equipment that is not dependent on batteries, using a container with a long cord which permits the photographer to keep inside his coat the batteries that power his camera, and

sing lithium batteries (fine for some cameras, undesirable for others). Less successful solutions include constantly changing batteries and putting the camera inside a parka. Film is brittle; handle carefully and wind slowly. In cold, when film is wound fast, static electricity can leave streaks on pictures.

Moisture forms on cold objects, including cameras, that are taken into warm areas. The best solution is to keep the camera in a cold environment. If the camera must be taken into a warm environment from a cold one, seal the camera in a plastic bag and let it warm slowly. Insure that snow does not enter the camera body when changing film, and take care not to breathe on optics or onto an opened camera. Handling cold metal with bare skin is painful at best, and, at worst, the skin can stick to the metal. Be sure to always wear gloves when handling the camera, and place tape on the camera back where it touches the face.

Snow and ice present difficult exposure problems. Light meters are calibrated to expose every scene eighteen percent gray. Snow should appear brighter than eighteen percent gray, so manual compensation usually should be made--one-half F stop darker when using incident meters and one-half F stop lighter when using reflected meters. Experiment with your camera to determine compensation needs, and bracket, bracket, bracket! If one will take the time necessary to learn to photograph in snow and will expend the effort needed to take pictures when he feels too tired and cold to bother, he will be rewarded with some of the most thrilling and beautiful pictures of his life.

Batteries

Light is important as a convenience, and sometimes for safety, on long winter nights. All batteries are affected by cold, but some are affected much more than others. Lithium batteries cost a little more, but have a five to ten year shelf life, are relatively unaffected by cold, and provide full power throughout the life of the battery. Carry spare batteries and bulbs. A light that can be worn on the head frees both hands to do a number of necessary things. It is wise to carry a candle lantern and spare candles. These save flashlight batteries when cooking, using the rest room, and doing housekeeping. They are also psychologically friendly and are claimed to even add a bit of heat in a tent.

Sun

The sun is the main source of warmth on our planet and is welcome on winter days ass a source of heat and supplier of light to enhance the beauty of the landscape. But the sun also can cause problems--blistering of the skin and the long range problems of skin cancer and permanent eye damage. The problem is exacerbated by snow and clouds, which give the light more surfaces off which to reflect, and by high altitude, where there is less atmosphere to shield people from the damaging ultra violet B rays. Even on cloudy days, severe damage can be done. The solution is to keep the sun from reaching parts susceptible to damage. To protect skin, wear clothing, use sun block (number 15 or higher), wear a protective hat, and protect lips with treatments containing sun blocks. To protect eyes, wear glasses or goggles that state that they screen out all or almost all ultraviolet light.

Weather

Various aspects of the weather provides challenges for the winter traveler. Wind creates a number of problems, including increasing effects of cold temperatures (wind chill factor); reducing the insulating ability of fabrics; reducing visibility by means of blowing snow; making travel against the wind more difficult; and making routine chores such as cooking, setting up and breaking camp, and going to the rest room difficult, even impossible. Sudden storms can create problems. Heeding weather forecasts and studying environmental clues help to prevent being surprised. If a storm gets too bad, stay put and wait it out.

Navigation

Snow can cover navigational aids, such as tracks, signs, landmarks, etc. Travel in a whiteout can be dangerous; be careful about falling into streams or over cliffs. Use of wands aids navigation, if you are traveling the same route both ways.

Glaciers

Glaciers are beautiful and interesting, and can create hazards which the winter traveler does not encounter on snowfields. Glaciers cover eleven percent of the planet's land area and hold more fresh water than is found in all the world's lakes, ponds and rivers

combined. There are 1,650 glaciers in the contiguous United States.

Glaciers, which are comprised of ice formed by the pressure of accumulated snow, are moving rivers of ice. The movement causes cracks, or crevasses, into which travelers can fall. Care must be taken to learn the important skills necessary for safe glacier travel, such as crevasse location and identification,, crossing crevasses, rigging of equipment (sleds/drag bag, pack, etc.) for glacier travel, self rescue from a crevasse, rescue of others from a crevasse, proper rope technique and signals, and proper ice axe techniques.

Steep Slopes

Steep terrain presents additional problems to the winter traveler/climber. Additional equipment, such as crampons, ice axe, and rope, are a must. Learning and practice should be in controlled situations. Skills needed on steep slopes include belaying, roped travel, self-arrest, step cutting, plunge stepping, and glissading. Dangers on steep slopes including pulling the rest of the party down the mountain with you and sliding over drop-offs.

Methods of Winter Wilderness Travel

Precipitation in winter forms snow or ice, and each presents special problems for the foot traveler. Snow is soft and permits the traveler to bog down to considerable depths, making travel tiring and difficult. Ice is one of the slickest of substances, and travel on ice requires the use of crampons and other specialized tools. The following methods of foot travel in winter have evolved through many thousand years of innovation, use, and experimentation. All are good and have their place; each has its advantages and disadvantages. A winter traveler should experiment and take his choice of method of travel/equipment, depending on the situation and personal preference.

Snowshoeing

The advantages of snowshoeing are that the traveler is on a relatively stable base, can carry large loads, and can learn adequate snowshoe techniques in a short time. The major disadvantage of snow shoes is that one cannot glide; he must walk every step of the way. Snowshoe technique resembles walking. The feet must be kept further apart than in walking; the wider the

snowshoe, the wider the stance must be. Although older, classic, and "mantle" snowshoes are made of wood and leather, most current snowshoes are made of aluminum,, neophreme, and plastic. The shape (length, width, curve of tip, etc.) is determined by the terrain, use, and the size of the total load.

Skiing

Skis are a very popular method of traveling through wilderness in winter. Skies, bindings, shoes, and poles come in a wide variety of shapes, materials, and characteristics, with each model serving its particular niche in cross country skiing.

Track skiing is usually done with very light gear, with the skier carrying little or not gear. Day skiing is done with light gear, with some safety gear, but not heavy loads, being carried. Extended skiing involves the use of more and stronger equipment, probably utilizing skis with steel edges, perhaps involving double boots, etc. Extreme skiing, which involves climbing to the area to be skied and skiing down, usually demands gear which is a combination of downhill and cross country equipment. The heel will be left free on level and up hill stretches and will be firmly attached to the boot for the downhill phase. Cross country ski techniques are variations on walking and sliding at the lower levels and require considerably more sophisticated skills at the upper levels. Skiing with a back pack requires more strength and stamina, and limits the type of skills that can be performed.

Choices must be made in equipment--waxed versus no-wax bottoms; three pin versus cable versus other type bindings; light weight poles versus adjustable, self arrest, avalanche probe poles. Additional equipment, such as ski skins to provide traction on steep slopes, are of importance in various situations.

Climbing

Winter climbing presents severe challenges for climbers. Routes have more dangers and take longer to complete. Equipment needed for winter climbs includes ice axe, piolet, crampons, pickets and/or snow flukes, ice screws, and many items discussed earlier, such as wands, avalanche equipment, and specialized clothing and camping equipment. Solo climbing in winter is particularly dangerous. Ice climbing requires additional equipment and skills.

Transporting Goods

Winter travel usually requires more gear than summer travel to the same place. Not only must additiona? equipment be carried, but it is more difficult to carry it in snow with "boards or tennis rackets" strapped to your feet. Three ways to lighten the loads carried in winter wilderness travel are: cache in advance, arrange for drops, and ferry and cache, with the latter being probably the most "sporting."

Usually, the equipment is carried by the traveler. if the total load is too heavy to carry on the back, it is usually carried on a slid or in a haul bag. Sleds range from the discount store variety to specialized sleds built for winter expedition travel. Drag bags are less expensive than specialized sleds, but do not offer quite as much control. Drag bags are easier to carry out of wilderness when the load has been consumed.

In winter wilderness travel, if the load cannot be carried in one trip, ferry and cache techniques are employed. Be careful to bury the cache deep enough to keep critters and birds from sampling, and be sure to mark the spot so it can be located later.

Where to Go to Experience Winter Trail Camping

Your favorite places in summer are probably the places you would most enjoy going in winter, provided they are accessible and not in areas of avalanche danger. Some of the crown jewels of winter travel are Yellowstone, Canadian Rockies, Grand Teton, and your favorite place that I have just omitted. It is almost assured that wilderness in winter will offer you a rewarding, exciting, beautiful, valuable, unforgettable experience. If you are reluctant to undertake such a venture on your own, there are a number of outfitters, ranches, and guide services who will help you safely enjoy wilderness in winter.

WHAT TO TAKE

A sample packing list is attached. The author works form this list to insure that he considers all of the major categories and items form which he need to choose. Experiment; pick and choose; create your own list. There is wisdom in working from a packing list. A day into a trip is late to learn that you forgot the fuel.

A CHALLENGE

I challenge you to:

- Go to wilderness in winter
- Be skilled
- Be prepared
- Use good judgment
- Enjoy one of the finest pleasures this plants and life can offer--the visual and sensual feast that is wilderness in winter!!!!

Items to Possibly Take on a Multi-Day Cross Country Ski Trip

Note: All of the following items will not be taken on any one trip. Pick and choose, depending on the trip. Always carry enough safety items, and know how to use them.

Carrying Equipment

pick
pockets for pack
sled
slid, cover
sled, straps
straps
truck or pack mule, to carry all of this

Clothing

belt
coat, down
coat, fiberpile or Quallofil
coat, shell
coat, thin
gaiters--thin, thick
glasses, fog cloth or liquid
glasses or goggles, multi-purpose or light color
glasses, cases
glasses, dark
glasses, elastic string
glasses, reading
hands--glove liner
hands--mittens--fiberpile, polypro, or wool
hands--shell, lined or unlined
head-balaclava--thin, medium, and/or thick
ground cloth, plastic, small
light, large lithium
light, small lithium
light, spare bulbs
poles, cross country back country
repair, duct tape
repair, epoxy
repair, nylon rope
repair, posidrive
repair, sewing kit
repair, ski pole repair kit
repair, spare baskets
repair, spare tip X-country skis
repair, steel wool

head-face mask--neoprene or Gore-Tex
head--hat--pile, shell
head--hood, attachable to coat
long underwear, bottom (thick, thin)
long underwear, top (thick, thin)
pants or bib--Gore-Tex
pants or bib--insulating (pile bunting, etc.)
pants--salopettes
shirt, turtleneck synthetic
shoes--X-ski, winter climbing, bunny boots
socks, inner
socks, thick--long, wool, polypro
suspenders
sweater
throat/face warmer
underwear
vapor barrier, bottom
vapor barrier, feet
vapor barrier, top
ribbon
vest--down, synthetic

Equipment

avalanche cord
survival, Labiosan
survival, lighter
survival, magnifying glass
survival, maps
survival, matches, windproof
survival, metal match
survival, money
survival, personal medicine
survival, signal mirror
survival, ski pole into probe adapter
survival, sun block
survival, survival cards
survival, vapor barrier bag (10 oz.)
survival, whistle
transceivers (1 for each person)
transceivers, spare batteries for
watch, tough one
wax, liquid
waxes, solid
repair, stretch cord
repair, survival tool
repair, tent pole sleeve
repair, toggle(s)
repair, wire
saw (can store inside shovel handle)
shovels (min. of 2)
skins
skis, X-country backcountry
straps to keep skis together
survival bag, complete
survival, Baggies
survival, compass
survival, cotton
survival, emergency blanket
survival, fire ribbon
survival, fishing line on pencil
survival, foil
survival, instruc. book(s)
survival, knife

Miscellaneous

binoculars
book, reading material
candle(s)
candle lantern
candle, reflector for lantern
deodorant
first aid kit
keys to vehicle and locks
lighters
medical, alcohol
medical, chafing cream

Food/Cooking/Eating Items

baggies, small, large
bottles, water (large mouth)
can opener
cook set
cook set--(fire) lighter
cook set--plastic scrub cloth
cook set--salt and other seasoning
cook set--stove instructions
cook set--stove oil
cook set--stove spare parts
cups
foil
food
garbage bags, mesh
garbage bags, plastic
knife
paper towels
plates
spoons
stove--fuel
stove--fuel bottle(s)
stove--MSR, primary
stove--MSR, spare
thermos, stainless
vitamins
toothpaste
wind gauge

Photography

batteries, spare
battery warmer
body, #1
body, #2
books, instruction
brush
cable release
camera, small
case for camera
clamp
film, Kodachrome 64
film, other
filter wrench
filter, other
filter, polarizer(s)
filter, UV or Haze(s)
flash
flash, batteries for:
    lens, 200
    lens, 35-105
    lens, 50 1.4

medical, cough drops
medical, dental floss
medical, Labiosan
medical, Noxzema
medical, Pepto Bismol
medical, personal medicines
medical, Q tips
medical, 2nd skin
medical, sun block
medical, tape
medical, water purification tablets
money--cash
money--credit cards
money--travelers checks
paper
pen/pencil
shoe treatment
soap
straps, spare
stuff sack(s), spare
thermometer
toilet paper
toothbrush

lens, 55 macro
lens, other
lens, other
meter, incident light
meter, reflected light
tissue for lens
tripod

Sleeping

ear plugs
ground cloth
pad--foam--thick medium, thin
pad-repair kit for Therm-a-Rest
pad-sack for
pad--Therm-a-Rest
pillow shell
sleeping bag
sleeping bag, Gore-Tex cover
sleeping bag, stuff sack (reg. or compression)
tent
tent pegs
vapor barrier liner

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